Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Rural Digital Opportunity Fund	)	WC Docket No. 19-126
	)	
Connect America Fund	)	WC Docket No. 10-90

REPLY COMMENTS OF VIASAT, INC.

Christopher Murphy
Associate General Counsel,
Regulatory Affairs
VIASAT, INC.
6155 El Camino Real
Carlsbad, CA 92009

John P. Janka
Matthew T. Murchison
LATHAM & WATKINS LLP
555 Eleventh Street, NW
Suite 1000
Washington, DC 20004

October 21, 2019

TABLE OF CONTENTS

Page

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Rural Digital Opportunity Fund	)	WC Docket No. 19-126
	)	
Connect America Fund	)	WC Docket No. 10-90

REPLY COMMENTS OF VIASAT, INC.

Viasat, Inc. ("Viasat") submits these reply comments in response to the Notice of Proposed Rulemaking ("NPRM") released on August 2, 2019 in the above-captioned proceedings.[1]

INTRODUCTION AND SUMMARY

Viasat's successful participation in the CAF Phase II auction underscores the importance of ensuring that geostationary orbit ("GSO") satellite providers can participate in the RDOF auction. As Viasat's opening comments explain, and as the report submitted by Stanford Professor Dr. Paul Milgrom and Auctionomics confirms, Viasat's participation in the CAF Phase II Auction was a win for consumers and for the Commission.[2] Viasat's participation led to a 36 percent increase in the locations served by the CAF Phase II auction—allowing the CAF program to support services for a far greater number of locations than it could have by relying on

---

1 *See Rural Digital Opportunity Fund; Connect America Fund*, WC Docket Nos. 19-126, 10-90, Notice of Proposed Rulemaking, FCC 19-77 (rel. Aug. 2, 2019) ("NPRM").

2 *See* Comments of Viasat, Inc., WC Docket Nos. 19-126, 10-90, at 6-12 (filed Sep. 20, 2019) ("Viasat Comments"); Dr. Paul Milgrom and Dr. Ilya Segal, "Lessons from the CAF II Auction for the RDOF Auction," at 2-4 (Sep. 20, 2019) ("Milgrom/Auctionomics Report"), attached as Exhibit A to Viasat Comments.

terrestrial providers alone.[3] Viasat's competitive bids also played a critical role in driving down the per-location cost of support in areas where terrestrial providers bid, thus enabling the Commission to maximize the efficiency and cost-effectiveness of its support mechanism while promoting intermodal competition.[4] Viasat's impact on the CAF Phase II auction thus "was to supply broadband service to a large number of locations that otherwise would have been left unserved, while providing competition to monopolistic terrestrial providers and reducing their rents," and "at zero net cost to the FCC."[5]

Various other parties filing in the opening round correctly support structuring the RDOF auction in a manner that ensures effective participation by GSO satellite providers. Multiple providers of satellite broadband, including Hughes, SES/O3b, and Pacific Dataport, highlight the benefits of GSO satellite offerings and warn of the dangers of unreasonably impeding bids from such providers. Hughes notes that, "[c]oupled with strategic investments in greater satellite capacity, rising upload/download speeds, broadening coverage across the continental United States, and advancements in network engineering, satellite broadband internet is an excellent, cost-effective product for [the] nearly 1.9 million U.S. residential broadband customers" that subscribe to such services.[6] SES and O3b urge the Commission to safeguard the ability of satellite services to participate, and warn against measures that would "thwart the significant contributions existing and next-generation satellite technologies can make to expand U.S.

---

3 *See* Viasat Comments at 6-8; Milgrom/Auctionomics Report at 2.

4 *See* Viasat Comments at 8-9; Milgrom/Auctionomics Report at 2, 4.

5 Milgrom/Auctionomics Report at 2.

6 Comments of Hughes Network Systems, LLC, WC Docket Nos. 19-126, 10-90, at 4 (filed Sept. 20, 2019) ("Hughes Comments").

citizens' broadband access."[7] And Pacific Dataport explains that GSO service "is the one tried and true technology that can rapidly and cost-effectively bridge the gaps in geographic areas where terrestrial network buildout is either physically impractical or uneconomical"—thus underscoring the need for effective GSO satellite participation in the RDOF auction.[8]

Non-satellite providers likewise support measures that would promote the ability of GSO satellite offerings to participate effectively. For instance, Big River Communications, a wireline provider, recognizes that the "weighting of the FCC proposed performance tiers should be focused on speed and data consumption which is consistent across all of the use cases for modern broadband networks," whereas latency has "little impact on the consumer's experience."[9] U.S. Cellular, a wireless provider, explains that "the FCC will incentivize greater participation in the auction and increase its competitiveness" by refraining from imposing unwarranted penalties on latency in the bidding process.[10]

Nevertheless, several parties that apparently would prefer not to face competition from satellite offerings urge the Commission to adopt measures aimed at excluding GSO satellite providers from the RDOF auction. These proposed measures take a variety of forms—including

---

7 Comments of SES Americom, Inc. and O3b Limited, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019).

8 Comments of Pacific Dataport, Inc., WC Docket Nos. 19-126, 10-90, at 6 (filed Sept. 20, 2019) ("PDI Comments").

9 Comments of Big River Communications, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019) ("Big River Comments").

10 Comments of United States Cellular Corporation, WC Docket Nos. 19-126, 10-90, at 8 (filed Sept. 20, 2019).

an outright prohibition on satellite participation,[11] a reduction of the 750 ms average roundtrip latency requirement,[12] or a prohibitive increase in the latency-related bidding penalty over and above the 25 point weight applied in the CAF Phase II auction.[13] Such proposals are unsustainable as a policy matter and suffer from serious legal defects as well.

As explained below, the NPRM does not even raise the possibility of an outright prohibition on satellite providers or a significant reduction in the average roundtrip latency requirement—and in any event, the Commission has already carefully considered and soundly rejected such proposals in the past on grounds that still apply today. As for proposals to significantly increase the latency penalty, no commenter has provided any evidence or analysis that could reasonably support such an approach, nor does any proponent of such measures grapple with the significant harms that would result to consumers in terms of reduced availability of RDOF service offerings, higher support costs, and less competition in the auction. The lack of any rational analytical or evidentiary support for increasing latency penalties or otherwise excluding GSO satellite providers also confirms that such proposals would be unlawful if

---

11 *See, e.g.*, Comments of Verizon, WC Docket Nos. 19-126, 10-90, at 4 (filed Sept. 20, 2019) ("Verizon Comments"); Comments of Visionary Broadband, WC Docket Nos. 19-126, 10-90, at 1-2 (filed Sept. 18, 2019).

12 *See, e.g.*, Comments of the Mississippi Public Service Commission, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019); Comments of the National Rural Electric Cooperative Association, WC Docket Nos. 19-126, 10-90, at 7 (filed Sept. 20, 2019) ("NRECA Comments").

13 *See, e.g.*, Comments of ITTA – the Voice of America's Broadband Providers, WC Docket Nos. 19-126, 10-90, at 21 (filed Sept. 20, 2019) ("ITTA Comments"); Verizon Comments at 6; Comments of INCOMPAS, WC Docket Nos. 19-126, 10-90, at 12 (filed Sept. 20, 2019) ("INCOMPAS Comments"); NRECA Comments at 7; Comments of USTelecom—the Broadband Association, WC Docket Nos. 19-126, 10-90, 19-195, at 21-22 (filed Sept. 20, 2019) ("USTelecom Comments").

adopted. Adopting any such measures would represent the height of arbitrary decision-making under the Administrative Procedure Act ("APA"), and would be an affront to the guiding legal principles of competitive and technological neutrality.

As Viasat has explained, the Commission should be seeking to expand opportunities for GSO satellite providers to participate, and should consider other ways to maximize the availability of RDOF service offerings and to promote competition, efficiency, and transparency in the RDOF auction. The Commission should do so by reducing the latency penalty to a level that better aligns with the small percentage of traffic that is latency-sensitive and recognizes that satellite voice services already must satisfy a Mean Opinion Score ("MOS") of four.[14] A more consistent weight would be 5 percent—not the 25 percent penalty that applied in the CAF Phase II auction or the 40 percent penalty proposed in the RDOF NPRM.[15]

The Commission also should ensure that satellite providers can participate effectively in the RDOF auction by using hybrid technologies. A wide array of commenters support reforms to give providers more flexibility to submit hybrid bids. And these hybrid offerings are not merely technologically possible; they are now commercially available in the marketplace. One such offering is Viasat's recently unveiled Flex service, which routes all latency-sensitive traffic over lower-latency links while leveraging Viasat's advanced satellite technology to deliver higher speeds when requested. Such innovative, low-cost, and high-performing offerings are precisely the kinds of services the Commission should be seeking to support and promote in the RDOF auction, and the Commission can do so through targeted changes to its rules discussed below.

---

14 *See* Viasat Comments at 17-18.

15 *See id.*

Moreover, in addition to the recommendations already made by Dr. Milgrom and Auctionomics to foster greater availability of supported services and transparency, the Commission should consider an additional measure put forth in the attached Supplemental Report: using a multiplication-based method for applying any speed or latency weights to bids, rather than a subtraction-based method that is not economically sound and does not reflect the public's relative valuation of different types of services.[16] A multiplicative weighting methodology would ensure that the Commission allocates support in a manner that optimizes the public trade-off between different types of services and promotes fairness and predictability in the auction.

DISCUSSION

I. PROPOSALS TO EXCLUDE GSO SATELLITE PROVIDERS FROM THE RDOF AUCTION SUFFER FROM FATAL POLICY AND LEGAL DEFECTS

A. Proposals to Exclude GSO Providers Are Unsupportable on the Record and Ignore the Harms for Universal Service Policy

As noted above, some parties have proposed draconian measures that would either expressly or effectively preclude GSO satellite providers from participating in the RDOF auction—including not only proposals to apply a prohibitively high latency penalty to GSO satellite providers' bids, but also proposals to exclude such providers in more overt ways, such as expressly barring such providers, or by reducing the average maximum latency level. These proposals are fatally flawed for several reasons.

As a threshold matter, nothing in the NPRM remotely tees up the possibility of expressly prohibiting GSO satellite providers from participating in the RDOF auction or reducing the

---

[16] *See* Dr. Paul Milgrom and Dr. Ilya Segal, "Multiplicative Weighting," (Oct. 21, 2019) ("Supplemental Milgrom/Auctionomics Report"), attached hereto as Exhibit A.

current 750 ms latency requirement for high-latency bidders. To the contrary, the NPRM appropriately takes it as a given that GSO satellite providers with an average roundtrip latency below 750 ms are included in bidding framework.[17] Thus, any consideration of a proposal to exclude GSO providers would require, at a minimum, a new notice of proposed rulemaking and an additional round of comments and reply comments in order for the Commission to discharge its duties under the APA.[18]

Moreover, these arguments ignore that the Commission decided years ago, based on substantial evidence and reasoned analysis, to allow GSO satellite providers with an average roundtrip latency at or below 750 ms to participate in federal support opportunities. In its 2016 *Phase II Auction Order*, the Commission decided to depart from an earlier proposal to impose a 100 ms roundtrip latency requirement on all bidders,[19] and instead establish a separate bidding tier for providers offering service with a maximum of 750 ms average roundtrip latency.[20] The Commission did so "[a]fter full consideration of the record," which showed that "high-earth orbit satellite providers [that] cannot meet the [100 ms] latency requirement" still are able "to offer higher speeds."[21] In light of this evidence, the Commission concluded that "[p]roviding flexibility for bidders to designate their latency performance level for each of the given performance tiers set out above will enable a broader range of providers to participate in the

---

17 *See* NPRM ¶ 25.

18 *See Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 555 (D.C. Cir. 1983) (holding that an agency "cannot bootstrap notice from a comment").

19 *See Connect America Fund*, Report and Order, Further Notice of Proposed Rulemaking, *et al.*, 29 FCC Rcd 7051 ¶ 149 (2014).

20 *See Connect America Fund*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 5949 ¶ 30 (2016) ("*Phase II Auction Order*").

21 *Id.*

Phase II competitive bidding process," thus enabling the Commission to make the CAF Phase II auction "as competitive as possible."[22]

No party opposing satellite participation in the RDOF auction has made any effort to address these prior Commission findings. Instead, the parties largely rehash arguments that the Commission has considered and rejected in the past. For example, some commenters assert generally that the latency inherent in GSO service can "adversely affect or limit the applications that a subscriber can use"[23]—overlooking the fact that latency-sensitive traffic makes up only a very small portion of overall Internet traffic,[24] and that the Commission allowed satellite providers to bid in the CAF Phase II auction over the very same objections.[25] Similarly, these

---

22 *Id.* ¶¶ 28, 33.

23 Comments of ADTRAN, Inc., WC Docket Nos. 19-126, 10-90, at 8 (filed Sept. 20, 2019); *see also, e.g.*, Comments of NTCA – The Rural Broadband Association, WC Docket Nos. 19-126, 10-90, at 10-11 (filed Sept. 20, 2019).

24 Viasat Comments at 17-18 (noting that, "[a]ccording to the latest data from Sandvine on global Internet usage, the two applications most frequently cited as latency-sensitive—online gaming and VoIP communications—together make up less than 10 percent of Internet traffic" (citing Sandvine, *Global Internet Phenomena Report*, at 6 (Oct. 2018), https://www.sandvine.com/hubfs/downloads/phenomena/2018-phenomena-report.pdf)); *see also* Hughes Comments at 5 ("Data show that the vast majority of consumer Internet traffic consists of nonlatency sensitive applications including video downloads, web browsing, and email." (citing Cisco, Visual Networking Index: Forecast and Trends 2017-2022, at Table 15 (Feb. 27, 2019 update), *available at* https://www.cisco.com/c/en/us/solutions/ collateral/serviceprovider/visual-networking-index-vni/white-paper-c11-741490.html#_Toc532256805)); PDI Comments at 5 ("Widely accepted industry studies indicate that less than 10% of all broadband applications are latency sensitive."); Big River Comments at 2 (explaining, as to latency, that "much of the data that comes across broadband networks today show little impact on the consumer's experience even when latency is several hundred milliseconds"). Notably, these statistics regarding online gaming traffic also include game downloads, which are not latency sensitive, but instead, benefit from the types high speeds provided by satellite.

25 *See Connect America Fund*, Report and Order and Order on Reconsideration, 32 FCC Rcd 1624 ¶ 31 (2017) ("*Phase II Auction FNPRM Order*").

commenters assert, without evidence, that "satellite broadband service is not a bridge to next generation broadband services"[26]—ignoring that Viasat and other satellite operators are at the forefront of innovation when it comes to next generation broadband services.[27] These efforts to re-litigate the Commission's longstanding and prudent decision to incorporate GSO satellite providers into the bidding structure thus are unavailing.[28]

As for the commenters proposing heightened latency penalties that would effectively exclude GSO satellite providers from the RDOF auction, these parties similarly fail to furnish any persuasive evidence supporting their preferred penalties. As Viasat explained in its opening comments, the NPRM's proposed 40 percent penalty would provide GSO satellite virtually no chance of participating successfully in the auction,[29] and the NPRM offers no reasoned analysis or evidence justifying the selection of 40 percent as the penalty[30]—particularly given that available evidence supports, at best, only a 5 percent penalty.[31] Commenters supporting the

---

26 USTelecom Comments at 21.

27 *See, e.g.*, Viasat, Inc., *Going Global: Viasat-3 Platform Will Take Our Service Around the World*, *available at* https://www.viasat.com/news/going-global (explaining that the planned ViaSat-3 constellation "will deliver very high download speeds," with each of the three ViaSat-3 satellites "expected to offer 1 terabit or more of total network capacity – a substantial jump from ViaSat-1 (140 Gigabit or Gbps per second) and ViaSat-2 (260 Gbps)," and with the innovative capability "to dynamically move resources to where customers are located").

28 By the same token, the Commission has appropriately considered and rejected related proposals for bidding mechanisms under which "low latency services [w]ould always win over high latency services," *Phase II Auction FNPRM Order* ¶ 32 & n.72, and need not entertain such proposals here. *Cf.* Comments of the Institute for Local Self-Reliance, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019) (asserting that "[s]atellite bids should only be considered when no other bids are present").

29 *See* Viasat Comments at 6; Milgrom/Auctionomics Report at 3.

30 *See* Viasat Comments at 17-21.

31 *See id.* at 18.

NPRM's 40 percent proposal likewise point to no substantial evidence that could justify such a penalty.[32] And the handful of commenters that urge the Commission to impose an even higher penalty—such as 45 or 50 percent—similarly pluck numbers from thin air.[33]

In this vein, Fiber Broadband Association ("FBA") relies on what it calls a "study" by a consulting firm called Cartesian, but that document—a slide deck attached to FBA's comments containing only minimal analysis based on unexplained assumptions—does not remotely justify the adoption of a heightened latency penalty.[34] The deck assigns dollar values to certain uses of the Internet, arbitrarily and without explanation or factual support, and then purports to "map" those dollar values onto various technologies, including fiber, DSL, and satellite.[35] Then, based on these arbitrary valuations, the slide deck contrives a new weighting system that would, among other things, increase the combined speed-tier-plus-latency penalty for "baseline, high latency" services from 70 percent (under CAF Phase II) to 85 percent.[36]

Besides the absence of any factual support for the deck's assumptions or coherent explanations for its mathematical contortions, the FBA's approach utterly fails to provide any quantitative model of how the proposed penalties would affect the auction's outcome. Even assuming there were some reasoned basis for its valuations, the document does not grapple with the fact that a higher penalty for GSO satellite providers would have resulted in losing 75

---

32 *See, e.g.*, ITTA Comments at 21; Verizon Comments at 6.

33 *See, e.g.*, INCOMPAS Comments at 12; NRECA Comments at 7.

34 *See* Comments of the Fiber Broadband Association, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019) (citing Cartesian Deck, *Reverse Auction Weighting Methodology: Analysis and Recommendations* (Sept. 20, 2019), Appendix A to Comments of the Fiber Broadband Association ("Cartesian Deck")).

35 *See* Cartesian Deck at 9-10.

36 *Id.* at 11-12.

satellite locations for each terrestrial location gained in the CAF Phase II auction (a terrestrial location that, in many cases, would not even be a fiber location).[37] Such an outcome would be disastrous for the Commission's efforts to expand access to broadband services, even according to FBA's highly questionable valuation estimates.

Indeed, FBA's proposal underscores a broader problem with the arguments of those seeking to exclude GSO satellite providers from the RDOF auction: In concocting higher latency penalties or other restrictions on satellite in the abstract, they ignore the significant real-world harms to competition and consumers that would result from their proposals. As noted above, the Milgrom/Auctionomics Report finds that the ability of GSO satellite services to participate in the CAF Phase II auction had the effect of "supply[ing] broadband service to a large number of locations that otherwise would have been left unserved, while providing competition to monopolistic terrestrial providers and reducing their rents," and "at zero net cost to the FCC."[38] The report specifically finds that Viasat's participation in the CAF Phase II auction led to a "36% coverage increase" overall—which dwarfs the estimated 0.48% of locations that terrestrial providers would have added to their coverage areas if Viasat had not participated.[39] The report also finds that 92% of the reduction in terrestrial support that resulted from Viasat's participation "c[ame] out of the rents demanded by monopolistic terrestrial bidders for the locations they ended up covering anyway."[40] As a result, "[m]aking the latency penalty [in the RDOF auction] more draconian than that used in the CAF II auction will create a very

---

37 *See* Milgrom/Auctionomics Report at 2.

38 *See id.*

39 *Id.*

40 *Id.*

high risk if not certainty of eliminating any potential competition from GSO satellite providers, resulting in significantly reduced coverage and a much higher per-location subsidy."[41] Particularly in the face of this compelling economic evidence, ILECs and their advocates simply cannot demonstrate that preventing GSO satellite providers from participating meaningfully in the RDOF auction somehow would better promote universal service. To the contrary, excluding satellite would have the opposite effect by reducing the availability of RDOF service offerings, driving up support costs, and undermining intermodal competition.

In fact, some of these commenters seek to impose draconian penalties on satellite providers *precisely because* doing so would prevent them from participating and keep them away from locations near existing terrestrial service areas. Verizon, for instance, complains that Viasat "won about 27 percent of the locations that were awarded support in the 2018 CAF auction," including locations "immediately adjacent" to those awarded to terrestrial providers. Based on that complaint, Verizon urges the Commission to either "eliminate the high-latency tier" altogether or "restrict satellite broadband providers to bidding for exceptionally isolated or sparsely-populated areas."[42]

These arguments reveal the true objective motivating such proposals: a desire to *avoid* competition from satellite providers, including in the bidding process. Of course, by proposing to exclude satellite providers or to relegate them to the hardest-to-serve areas, Verizon may well believe it can artificially inflate its own subsidies by eliminating competitive pressure on its bids. The Milgrom/Auctionomics Report shows that a strategy of excluding satellite providers may well prove effective at enabling terrestrial providers to extract supracompetitive rents from the

---

41 *Id.* at 4.

42 Verizon Comments at 4-5.

RDOF auction.[43] But that goal stands in stark opposition to the Commission's goal of ensuring an efficient allocation of federal support[44]—and cannot be the basis for imposing even more significant restrictions on satellite bidding in the RDOF auction.

B. These Deficiencies Also Underscore the Unlawfulness of Proposals to Expressly or Effectively Exclude GSO Providers from the RDOF Auction

The absence of any cogent evidentiary or analytical support for increasing latency penalties or otherwise excluding GSO satellite providers not only undercuts any policy justifications for such proposals; it also confirms that such proposals would be unlawful if adopted.

As Viasat explained in its opening comments, the adoption of such measures would present significant APA problems.[45] The Commission's "obligation to engage in 'reasoned decisionmaking' means that '[n]ot only must an agency's decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.'"[46] As discussed above, the record contains no logical or rational justification for imposing a prohibitive 40 percent penalty on bids from GSO satellite operators (or for excluding satellite providers through other methods). Among other problems, neither the Commission nor any party has sufficiently justified singling out latency from among other attributes like jitter and packet loss and elevating it to the same level of importance as speed in establishing bidding

---

43 *See* Milgrom/Auctionomics Report at 2 (finding that 92% of the reduction in terrestrial support that resulted from Viasat's participation "c[ame] out of the rents demanded by monopolistic terrestrial bidders for the locations they ended up covering anyway").

44 *See* NPRM ¶ 12 (underscoring the Commission's goal of "ensur[ing] that its limited universal service support is awarded in an efficient and cost-effective manner").

45 *See* Viasat Comments at 12-21.

46 *United Keetoowah Band of Cherokee Indians in Okla. v. FCC*, 933 F.3d 728, 738 (D.C. Cir. 2019) (quoting *Michigan v. EPA*, 135 S. Ct. 2699, 2706 (2015)).

penalties for federal support mechanisms. Moreover, as Viasat has pointed out, there is no rational relationship between the proposed 40 percent penalty on latency and the facts of actual Internet usage—which at most support only a 5 percent latency-related weight when factoring in the overlapping obligation to meet a MOS of four for VoIP.[47]

The adoption of such measures also would run afoul of the guiding principle of competitive and technological neutrality.[48] Indeed, as noted above, the current record makes it abundantly clear that proponents of these measures believe that, in light of Viasat's success in the CAF Phase II auction, the Commission should now *shield* terrestrial providers from satellite competition in the RDOF bidding process. This is not a case, therefore, in which the Commission is merely tasked with arriving at a reasonable balancing of the various universal service goals of Section 254(b), including competitive neutrality.[49] Where, as here, an express justification for these proposals is to prevent competition, the Commission would run a significant risk of violating Section 254(b) if it were to adopt these measures.

C. Commenters Also Mischaracterize Viasat's Petition for Reconsideration in Connection with the CAF Phase II Auction

Finally, contrary to the claims of USTelecom and ITTA, Viasat's decision to seek reconsideration or clarification of certain CAF-related performance testing requirements does not "demonstrate" some "problem with allowing satellite" to participate in federal support opportunities.[50]

---

47 *See* Viasat Comments at 17-18.

48 *See id.* at 23-24.

49 *Cf. Rural Cellular Ass'n v. FCC*, 588 F.3d 1095, 1104 (D.C. Cir. 2009).

50 USTelecom Comments at 22; *see also* ITTA Comments at 20-21.

To begin with, it is beyond the pale for USTelecom and ITTA to attack Viasat for seeking review of support-related performance testing requirements in the *2018 Performance Metrics Order* when they themselves did so as well. On the same day that Viasat submitted its petition, USTelecom and ITTA joined WISPA in filing a petition for reconsideration that sought a host of changes to the testing regime applicable to terrestrial CAF support recipients.[51] Like Viasat's petition, the petition filed by USTelecom, ITTA, and WISPA sought review of testing requirements that would apply to entities that had just been awarded provisional support in the CAF Phase II auction.[52] And while USTelecom appears to take issue with the fact that Viasat's petition was resolved only recently in September 2019,[53] USTelecom's own petition *remains pending*, and will not be resolved until the Commission's October 2019 Open Meeting at the earliest.[54]

The attacks levied by USTelecom and ITTA against Viasat regarding its petition for reconsideration thus ring particularly hollow. USTelecom and ITTA assert that Viasat's petition "cast a shadow of uncertainty" over the CAF Phase II auction.[55] But they ignore that they, too, sought post-auction review of performance testing requirements applicable to auction winners. And in any event, the *2019 Performance Metrics Recon Order* specifically rejects the notion that

---

51 *See generally* USTelecom, ITTA, and WISPA Petition for Reconsideration and Clarification, WC Docket No. 10-90 (filed Sept. 19, 2018).

52 *See, e.g.*, *id.* at 4.

53 USTelecom Comments at 16.

54 *See* FCC, October 2019 Open Commission Meeting, https://www.fcc.gov/news-events/events/2019/10/october-2019-open-commission-meeting (listing an item addressing the USTelecom/ITTA/WISPA petition for reconsideration).

55 USTelecom Comments at 17; *see also* ITTA Comments at 20-21 (similarly claiming that Viasat's petition created a "specter of uncertainty").

post-auction changes to performance testing somehow undermine the integrity of the auction. As that order explains, no bidder "had a 'right' that a particular testing condition (either the testing conditions established in the *CAF Phase II Auction Order* or as subsequently clarified in the *Performance Measures Order*) would remain in place in perpetuity without further modification by the Commission."[56]

USTelecom's other claim—that Viasat's petition "was intrinsically tied to its ability to meet the Commission's voice service requirements," and indicated that "satellite voice may be unable to satisfy the Commission's latency requirements"[57]—is categorically incorrect and was likewise rejected by the Bureaus. Viasat repeatedly made clear in that proceeding that it was confident it could demonstrate a MOS of four regardless of whether the Commission granted its petition.[58] And the *2019 Performance Metrics Recon Order* expressly "disagree[d]" with claims that "Viasat's request for changes to the methodology adopted by the Bureaus and OET necessarily means that Viasat is unable to meet the MOS of at least four."[59] Indeed, the Bureaus

---

56 *Connect America Fund*, WC Docket No. 10-90, Order on Reconsideration, DA 19-911, ¶ 24 (WCB, WTB, & OET rel. Sept. 12, 2019) ("*2019 Performance Metrics Recon Order*").

57 USTelecom Comments at 16, 22.

58 *See, e.g.*, Letter from John P. Janka, Counsel to Viasat, Inc., to Marlene H Dortch, FCC, WC Docket Nos. 10-90, 14-58, and 09-197, at 1-2 (Apr. 3, 2019) ("Viasat has *not* suggested that it 'needed the MOS standard changed in order to comply' with the conditions of CAF II funding. . . . Viasat does not believe—and has never claimed—that a denial of its petition would prevent it from demonstrating that its future CAF II-supported voice offering will meet a MOS of four. To the contrary, Viasat has consistently made clear that, under its current understanding of the testing parameters, it expects that its future CAF II-supported voice offering will meet or exceed a MOS of four.").

59 *2019 Performance Metrics Recon Order* ¶ 18.

found that "[n]o party has presented any evidence that a satellite carrier testing its customers on the actual satellite network cannot show a MOS of 4."[60] The same is true here.

II. THE EVIDENCE SUPPORTS REFORMS THAT WOULD FACILITATE PARTICIPATION BY GSO SATELLITE PROVIDERS IN THE RDOF AUCTION

A. The Record Supports Measures to Facilitate the Use of Hybrid Technologies

As explained in Viasat's opening comments, the Commission should undertake additional measures to ensure that the framework of the RDOF auction promotes competition, maximizes the number of supported areas, and fosters efficiency. To that end, as Viasat has explained, the Commission should ensure that satellite providers can participate effectively in the RDOF auction by using hybrid technologies.[61]

While the Commission has long encouraged providers using hybrid technologies to bid for federal support,[62] its current rules, which provide that an offering may qualify for a particular speed/latency tier only if it satisfies the applicable speed and latency requirements for 95 percent of all peak period measurements, significantly impede such bidding.[63] Most notably, even where a hybrid network can deliver high speeds for traffic that demands such performance, and low latency for all latency-sensitive traffic—thus providing end users with the same or better

---

60 *Id.* ¶ 15.

61 *See* Viasat Comments at 24-27.

62 *See* NPRM ¶ 72 (proposing "allowing an applicant to use different technologies within a state and [to] use hybrid networks to meet its public interest obligations"); *see also, e.g.*, *Connect America Fund*, Public Notice, 33 FCC Rcd 1428 ¶ 64 n.133 (2018) ("*Auction 903 Procedures Public Notice*") ("An applicant may propose to use different technologies within a state and use hybrid networks to meet its Phase II public interest obligations.").

63 *See Connect America Fund*, Report and Order, 28 FCC Rcd 15060 ¶¶ 23-27 (2013); *Auction 903 Procedures Public Notice*, 33 FCC Rcd 1428 ¶ 12 n.16 ("For the latency requirement, at least 95 percent or more of all peak period measurements of roundtrip latency must be at or below 100 milliseconds (ms) (low latency) or 750 ms (high latency)"); *Connect America Fund*, Order, 33 FCC Rcd 6509 ¶ 50 (2018).

experience than they would enjoy over a single-technology network—the Commission's rigid rule may prevent such offerings from qualifying for a particular bidding tier.

A single, inflexible 95 percent requirement essentially penalizes such hybrid providers for performance attributes that simply do not matter to consumers—by holding against such providers the use of lower-speed links for non-bandwidth-intensive traffic like VoIP, and the use of higher-latency links for non-latency-sensitive traffic like streaming video. Indeed, in the case of streaming video and other bandwidth-intensive applications, a hybrid satellite-terrestrial network can significantly outperform certain terrestrial-only networks, especially given the substantially higher speeds achievable over satellite links as compared with DSL connections. The current rule thus has the effect of granting a preference to terrestrial-only networks to the exclusion of satellite-terrestrial hybrid offerings that can often deliver a better end-user experience, particularly for the streaming video applications that consumers use most.

For this reason, Viasat has proposed modifying the 95 percent requirement such that, if a provider meets the MOS of four requirement for VoIP service and routes other latency-sensitive traffic over low-latency links that provide 100 ms of latency for 95 percent of all peak period measurements, it is deemed to satisfy the low latency threshold for bidding purposes.[64] Such an approach would appropriately account for the benefits of hybrid technologies, and avoid penalizing hybrid bidders for attributes that do not meaningfully affect the end-user experience. In adopting this proposal, the Commission also would be able to follow through on its stated desire to enable providers—including GSO satellite operators—to partner effectively with other

---

64 *See* Viasat Comments at 25.

network operators on offerings that optimize the end-user experience and deliver innovative and high-quality services across the country.[65]

A wide array of terrestrial providers have echoed the need for reform to the Commission's existing hybrid bidding rule. Big River Communications explains in its comments that, by "[a]llowing bidders to provide service in the Rural Digital Opportunity Fund to leverage hybrid networks, the Commission can help ensure that the most cost-effective network configurations can be deployed."[66] According to Big River, "[t]his will result in the Commission being able to fund broadband service to more Americans with the specified budget amount."[67] Big River accordingly urges the Commission "to revisit its bid weighing system to address the reality of the use of hybrid communications networks to meet consumers' needs especially in regard to latency," so that "bidders would be able to formulate bids based on a hybrid network composed of different networks with different performance characteristics."[68]

Similarly, Sacred Wind Communications "urges the Commission to permit RDOF bidders to satisfy performance obligations through partnerships that have *mixed* network technology capabilities."[69] Sacred Wind also notes that a more flexible hybrid bidding rule would allow for better services in areas that "are characterized by sparsely populated, expansive geographic territories, difficult topography and vexing siting processes."[70] And the Utilities

---

65 *See* NPRM ¶ 72.

66 Big River Comments at 4.

67 *Id.*

68 *Id.* at 3.

69 Comments of Sacred Wind Communications, Inc., WC Docket Nos. 19-126, 10-90, at 2-3 (filed Sept. 20, 2019).

70 *Id.* at 3.

Technology Council likewise supports "allowing an applicant to use different technologies within a state and use hybrid networks to meet its public-interest obligations."[71]

Finally, as these commenters apparently recognize, and as Viasat underscored in its comments, hybrid networks—including those that enable service over a mix of satellite and terrestrial links—are increasingly becoming commercially available. Indeed, just in the past few weeks, Viasat began offering its hybrid "Viasat Flex" service to consumers across the country. Customers signing up for Flex receive a home modem that not only is configured to receive high-speed satellite broadband with download speeds of 25 Mbps and upload speeds of 3 Mbps, but also includes a port for connecting to a terrestrial provider's lower-latency network. Once installed, the Flex modem can route the customer's Internet traffic over either the satellite link or the terrestrial link depending on the nature of the customer's Internet usage.

As described in Viasat's opening comments, the Flex modem begins by routing a customer's Internet traffic over a lower-latency terrestrial link first, thereby ensuring optimized delivery of all latency-sensitive traffic, and then shifts traffic to the high-speed satellite link whenever the customer's usage demands more bandwidth.[72] Thus, the Flex modem would use the lower-latency link to handle latency-sensitive applications like real-time gaming (as distinct from game *download* traffic, which does not require a lower-latency connection), while bandwidth-intensive applications would run over the satellite link (after an initial connection over the terrestrial link).[73] The hybrid offering therefore "ensures an optimally efficient

---

71 Comments of the Utilities Technology Council, WC Docket Nos. 19-126, 10-90, at 17 (filed Sept. 20, 2019).

72 *See* Viasat Comments at 26.

73 *See id.*

allocation of network resources based on customer usage and demand."[74] The end result is a service that blends the best attributes of satellite and terrestrial broadband, delivering high speeds for traffic that demands such performance and low latency for all latency-sensitive traffic, in a manner that is seamless to the end user. Such hybrid offerings also are more reliable than terrestrial-only offerings, since the satellite link enables continued connectivity in case of any outage on the terrestrial network (which can occur with greater frequency in rural areas).

These types of offerings—which are not just technologically possible but now commercially available in the marketplace—are precisely the kinds of innovative solutions that the Commission should be looking to include in the RDOF auction. Adopting the revised rule set forth above would accomplish that goal and promote intermodal competition. And by reforming its rules to encourage bids from hybrid service providers and ensuring that a wider array of providers can participate effectively, the Commission would advance its goal of expanding the locations that are served under the RDOF and driving down the per-location subsidies through more competitive bidding.

B. The Commission Should Consider Additional Changes to the Mechanics of the RDOF Auction to Promote Efficiency and Fairness

As explained in detail in Viasat's opening comments, the Commission should consider further refinements to its competitive bidding rules that would maximize the number of locations supported by the RDOF budget and improve transparency for bidders.[75] For example, as the Milgrom/Auctionomics Report recommends, the Commission could expand the number of

---

74 *Id.*

75 *See* Viasat Comments at 27-29; *see also* NPRM ¶¶ 19, 22 (seeking comment on proposal to "rely on the Commission's existing general rules regarding competitive bidding for universal service support").

locations served by using the budget freed up by competition among bidders in contested areas to assign support in CBGs where uncontested pre-clearing bids were made.[76] The approach outlined in the Milgrom/Auctionomics Report, if applied in the CAF Phase II Auction, "would have resulted in covering more than 210,000 additional locations," and would have "discourag[ed] bidders from engaging in . . . frivolous bidding in pre-clearing rounds" since "pre-clearing bids would then have a chance of winning."[77] The Commission also could explore adopting a mechanism that would credit bidders for coverage in a manner that could offset penalties associated with speed and latency—along the lines of the "quality" score proposed by Dr. Milgrom in connection with the CAF Phase II Auction.[78]

Additionally, the Milgrom/Auctionomics Report suggests that, to improve transparency and prevent bidders from using insincere bids to impede meaningful information discovery, the Commission could consider ruling that bidding eligibility will be "determined separately for each individual area rather than on a state[wide] basis," and prohibiting participants from "placing bids for which the total support, evaluated at the round's base clock percentage, exceeds a predetermined share of the budget."[79]

---

76 *See* Milgrom/Auctionomics Report at 5-6; *see also* Viasat Comments at 27.

77 Milgrom/Auctionomics Report at 6.

78 *See* Viasat Comments at 28; *see also* Ex Parte Letter of John P. Janka, Counsel to Viasat, WC Docket Nos. 10-90, 14-58, 07-135, 05-337, 03-109, GN Docket No. 09-51, CC Docket Nos. 01-92, 96-45, WT Docket No. 10-208 (filed May 2, 2017) (attaching Dr. Milgrom's proposal).

79 Milgrom/Auctionomics Report at 4-5. In addition, as the Milgrom/Auctionomics Report suggests, the Commission should consider adopting a rule prohibiting bidders from "modifying their bids in rounds in which their implied supports for eligible services in eligible areas at base clock percentage do not change"—given that such conduct may well be an attempt to "communicate for collusive purposes." *Id.* at 5.

C. The Commission Should Modify the Weighting Methodology to Ensure an Optimal and Predictable Allocation of Limited Public Funds

The Commission also should consider reexamining its methodology for applying any speed or latency weights to bids.[80] As the attached Supplemental Report from Dr. Milgrom and Auctionomics explains, the Commission should move away from an approach that applies weights by *subtracting* a number from the amount of the bid—which can result in reducing some bids to an effective value of zero (or less) even before the clearing round.[81] Instead, a more appropriate and economically sound approach would be to apply weights by *multiplying* the amount of the bid by a decimal value reflecting the weight.[82]

As the Supplemental Report shows, the subtractive-weighting approach used in the CAF Phase II auction "gives rise to an allocation of the budget between different types of services that is highly unpredictable and may bear no relation to the relative public values of these services."[83] For example, under the subtractive-weighting applied in the CAF Phase II auction, "the ratio of satellite to gigabit subsidies for any given location went from 100% to 0% over the course of the auction."[84] As a result, "had the budget cleared at a low base clock percentage, satellite could have been pushed out of the auction completely."[85] And as noted in Auctionomics' prior report,

---

80 *See* NPRM ¶¶ 20, 22 (seeking comment on the appropriate methodology used to calculate the value of bids).

81 *See* Supplemental Milgrom/Auctionomics Report at 1-2.

82 *See id.*

83 *Id.* at 1.

84 *Id.*

85 *Id.*

such an outcome "would have resulted in a loss of coverage to 75 locations in exchange for one location covered by terrestrial providers for the same total amount of money."[86]

Using multiplicative weighting would avoid the irrational result of assigning a value of zero to GSO satellite bids in later rounds and risking the exclusion of such bidders. As the Supplemental Report explains, "multiplicative weighting, unlike the subtractive weighting used in the CAF II auction, will guarantee that the auction allocates limited public funds to optimize the public trade-off between different types of services."[87] An additional benefit of the multiplicative approach is that it decreases the number of rounds in which most bidders' prices are not reduced, thereby shortening the auction and eliminating incentives to engage in "manipulative rather than straightforward bidding."[88] Moreover, when coupled with the proposal noted above to recall bids from pre-clearing rounds and use the leftover budget to offer subsidies to these bids, such an approach would help "maximize coverage" by supported services.[89]

---

86 *Id.* at 1-2 (citing Milgrom/Auctionomics Report).

87 *Id.* at 2 (suggesting that, if the Commission "determines that a given service's public value is a fraction $k < 1$ of the low-latency gigabit service, then the subsidy offered for the former service to a given location should always be *k times* the subsidy offered for the latter service to the same location").

88 *See id.*

89 *See id.*

CONCLUSION

Viasat looks forward to working closely with the Commission to ensure that the RDOF auction is an unqualified success for American consumers. Through the modifications set forth above, and by ensuring meaningful participation by GSO satellite operators, the Commission will be able to expand the availability of robust broadband services throughout the country while driving down per-location costs—thus bridging the digital divide in an efficient, lawful, and competitively neutral manner.

Respectfully submitted,

/s/ John P. Janka

John P. Janka
Matthew T. Murchison
LATHAM & WATKINS LLP
555 Eleventh Street, NW
Suite 1000
Washington, DC 20004

Christopher Murphy
Associate General Counsel,
Regulatory Affairs
VIASAT, INC.
6155 El Camino Real
Carlsbad, CA 92009

October 21, 2019

EXHIBIT A

Date: October 21, 2019

Subject: Multiplicative Weighting

According to the FCC and a number of the commenting parties, the upcoming RDOF auction should use bid weighting to reflect the fact that different types of broadband services offers different benefits to the public. The logic behind these proposals assumes that the public value of higher-latency baseline coverage by a GSO satellite (henceforth, "satellite") may be worth a fraction $k < 1$ of the lower-latency gigabit coverage by a terrestrial provider (henceforth, "gigabit"). However, the particular implementation of weighting that was used in the CAF II auction and which is proposed for the RDOF auction is logically inconsistent with this basic premise. Specifically, if satellite coverage of a given location is worth to the public *k* times gigabit coverage of the same location, then the optimal weighting for allocating limited public funds to maximize public welfare must offer satellite providers a subsidy that is *k times* the subsidy offered to gigabit providers. We call this "multiplicative weighting."

The CAF II auction used not multiplicative but "subtractive" weighting: it subtracted from the subsidy offered to each service to a given area the "T+L penalty" for that service multiplied by the reserve price for the area. Specifically, while the auction offered all types of services equal reserve prices at the outset, it then proceeded to reduce satellite subsidies while holding gigabit subsidies fixed until satellite subsidies became equal to 30% of gigabit subsidies (as satellite providers' "T+L penalty" was 70%, in contrast to gigabit providers' penalty of zero). From that point onward, the two subsidies were being reduced by exactly the same amounts until satellite subsidies became zero. Thus, the ratio of satellite to gigabit subsidies for any given location went from 100% to 0% over the course of the auction.

This variability in the subsidy ratio gives rise to an allocation of the budget between different types of services that is highly unpredictable and may bear no relation to the relative public values of these services. Had the budget cleared at a high base clock percentage, satellite could have received subsidies that were close to gigabit, while had the budget cleared at a low base clock percentage, satellite could have been pushed out of the auction completely. As it happened, the budget cleared at base clock percentage 78.35%, at which the ratio of the satellite subsidy to the gigabit subsidy was 10.1% (computed as (78.35%-70%)/78.35%), and this ratio went down to zero in the clearing round. If the T+L satellite penalty had been set, not at 70%, but at 80% or higher, then satellite would have been pushed out of the auction. As we argued in our September 20, 2019 filing,[1] this would have resulted in a loss of coverage to 75 locations in exchange for one location covered by terrestrial providers for the same total

[1]See the Auctionomics paper attached to https://ecfsapi.fcc.gov/file/1092075048414/Viasat%20Comments%20on%20RDOF%20NPRM%20and%20Auctionomics%20Report%20(9-20-19).pdf

Auctionomics Inc.
677 Waverly Street
Palo Alto, CA 94301

PHONE (650) 723-3397
E-MAIL paul@auctionomics.com
WEB SITE http://www. auctionomics.com

amount of money. This 75:1 trade-off is very far from the trade-offs claimed to be optimal by any of the commenters.[2]

In order to ensure that public funds are allocated optimally between different types of services, the RDOF auction must use multiplicative rather than subtractive weighting. We argued for multiplicative weighting for the CAF II auction.[3] Specifically, if the FCC determines that a given service's public value is a fraction $k < 1$ of the low-latency gigabit service, then the subsidy offered for the former service to a given location should always be *k times* the subsidy offered for the latter service to the same location. Thus, the ratio of reserve subsidies between the two services for a given location should be $k : 1$, and this ratio should be maintained as both subsidies are reduced in the course of the auction. This multiplicative weighting, unlike the subtractive weighting used in the CAF II auction, will guarantee that the auction allocates limited public funds to optimize the public trade-off between different types of services. A side benefit of the multiplicative approach will be to obviate the need for many rounds in which most bidders' prices are not reduced, which needlessly prolonged the CAF II auction and incentivized manipulative rather than straightforward bidding (as observed in our previous filing).

Multiplicative weighting conserves limited public funds relative to subtractive weighting—an effect that calls particular attention to a clear flaw in the proposed auction rules and those that were used for CAF II, which is that they needlessly leave a share of the budget unspent. If that error is left uncorrected, then it can be exacerbated by the additional funds conserved by multiplicative weighting. Fortunately, this design flaw has a simple fix, which would minimize the likelihood of any funds left unspent, maximize coverage given the budget, and use any leftover budget to subsidize the highest-quality services offered. This solution takes advantage of post-clearing competition to increase the clearing point, recalling bids from pre-clearing rounds to maximize coverage, and offering subsidy to these bids according to the second-price rule. This approach was outlined in greater detail in our September 20, 2019 filing, and we refer to it for additional detail.

In summary, in contrast to the subtractive-weighting approach employed in the CAF Phase II auction, in which the weights have a highly nonlinear and unpredictable effect on the auction's outcome, we propose a superior multiplicative-weighting approach, which would allow the FCC to allocate the budget optimally between different types of services based on the relative public values of those services.

[2] For example Cartesian's filing argues that satellite coverage is worth 1/7 of gigabit coverage.
[3] See Viasat's May 2, 2017 filing, with the attached Auctionomics deck dated April 28, 2017. https://ecfsapi.fcc.gov/file/10502013280526/ViaSat%20Ex%20Parte%20(5-2-17)%20(CAF%20II).pdf.